

TRAFFIC



2024

**IDENTIFYING FINS
OF SHARKS AND RAYS
USING 3D REPLICAS:**

A GUIDEBOOK



ABOUT US

TRAFFIC is a leading non-governmental organisation working globally on trade in wild animals and plants in the context of both biodiversity conservation and sustainable development.

Reproduction of material appearing in this report requires written permission from the publisher.

The designations of geographical entities in this publication and the presentation of the material, do not imply the expression of any opinion whatsoever on the part of TRAFFIC or its supporting organisations concerning the legal status of any country, territory, or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

ACKNOWLEDGEMENT

Grant for developing this manual was provided by US Department of State Bureau of International Narcotics and Law Enforcement Affairs Grant No.: SFOP0009001 under the Project "Countering Wildlife Trafficking in South and Southeast Asia".

PUBLISHED BY:

TRAFFIC, India Office

PHOTO CREDIT

Cover Image © Alexis Rosenfeld



© Brian J. Skerry / National Geographic-Stock / WWF

page 4

INTRODUCTION

page 7

3D FIN IDENTIFICATION GUIDE

page 9

KEY FEATURES OF FINS

page 10

BIGEYE THRESHER

page 12

COMMON THRESHER

page 14

PORBEAGLE SHARK

page 16

SHORTFIN MAKO SHARK

page 18

BLLUE SHARK

page 20

OCEANIC WHITETIP SHARK

page 22

SILKY SHARK

page 24

GREAT HAMMERHEAD SHARK

page 26

SCALLOPED HAMMERHEAD SHARK

page 28

BOWMOUTH GUITARFISH

page 30

GIANT GUITARFISH

page 32

WEDGEFISH

page 34

REFERENCES



INTRODUCTION

Sharks and rays belong to elasmobranchs—or Elasmobranchii—a subclass of Chondrichthyes (cartilaginous fish). There are over 500 species of sharks (Ebert *et al.*, 2021) and 630 rays (Last *et al.*, 2016) found worldwide, of which 160 species of sharks and 68 species of rays are found in India (Kizhakudan *et al.*, 2018).

Sharks and rays are considered among the most threatened species in the world. Commercial fisheries supply to an increasing demand for fins used in preparing fin soup in cultural cuisine. This is propelling the decline in sharks and rays populations worldwide. Loss of sharks and rays can disrupt the critical ecosystem functions, including controlling a wide array of species they prey upon and nutrition distribution in the oceanic habitats.

Recognising these conservation concerns, international trade in sharks and rays has been regulated under Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). At least, five species of Sawfishes Family Pristidae spp. have been listed under Appendix I of the CITES; and trade in these species is only authorised in exceptional circumstances as Appendix I includes all species threatened with extinction.

While more than 100 species are listed in Appendix II and III. Appendix II includes species not necessarily threatened with extinction, but in which trade is controlled in order to avoid utilisation incompatible with their survival. Appendix III contains species that are protected in at least one country, which has asked other CITES Parties for assistance in controlling the trade.

In India, 18 species of sharks and rays are protected under the Schedule I and eight species under the Schedule II of the Wild Life (Protection) Act, 1972 as amendment in 2022. In order to curb over-exploitation and regulate trade, other policies and as per the regulations have been put in place.

In 2013, the Ministry of Environment, Forests and Climate Change, Government of India banned shark finning in the sea under its 'Fins Naturally Attached' policy. In 2015, a blanket ban on shark fin trade was declared in India; under the EXIM (Export-Import) policy of the Foreign Trade (Development and Regulation) Act, 1992.

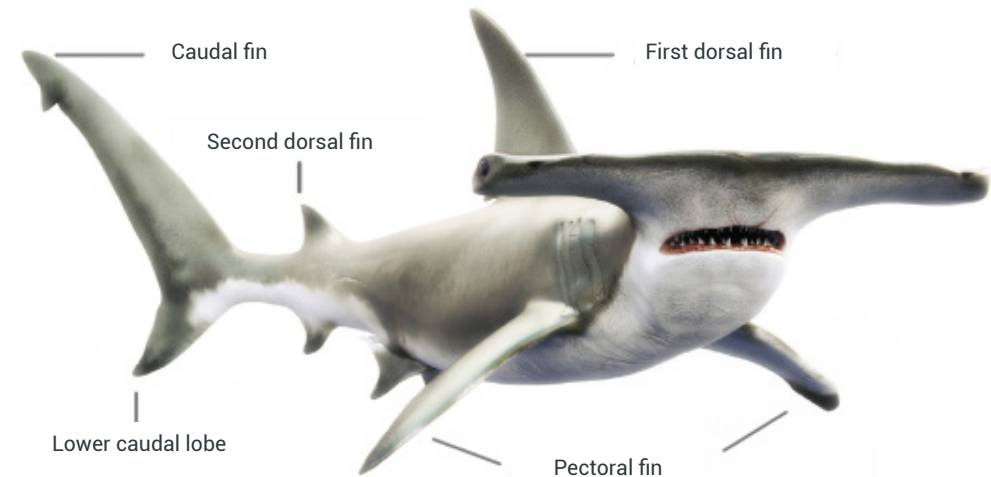
3D FIN IDENTIFICATION GUIDE: PURPOSE

Over 100 shark and ray species are listed in the CITES Appendices and many of these are targeted for their valuable fins, mainly for consumption in Asia. The law enforcement agencies often do not have reference photos or training and they have to identify fins against over 1,000 potential sharks and rays species to monitor the trade.

Identifying the fins of CITES-listed sharks and rays quickly and reliably is key in ensuring the effective implementation of CITES and national regulations. Hence, this 3D Fin Identification Guide has been developed to help law enforcement officials identify dried and unprocessed fins of 11 commercially traded shark and rays species based on physical characteristics.

The fins covered in this publication are those of most commonly found in international trade. All of them are for shark and rays species listed in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

The fin types used in this guide are the dorsal and pectoral fins. Dorsal fins are the same colour on both sides and pectoral fins are darker on the top surface and lighter on the bottom surface. QR scan code is included for each fin, which will open up to individual fin identification on the TRAFFIC website.



© Joost van Uffelen / WWF

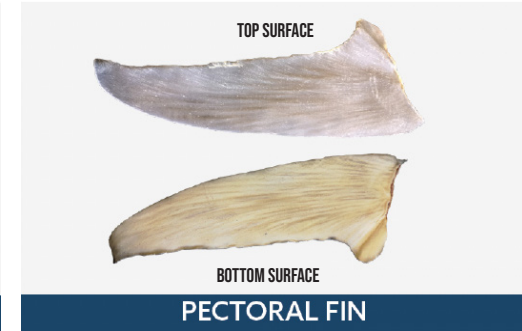
KEY FEATURE OF FINS



© WWF-Hong Kong / Tracy Tsang

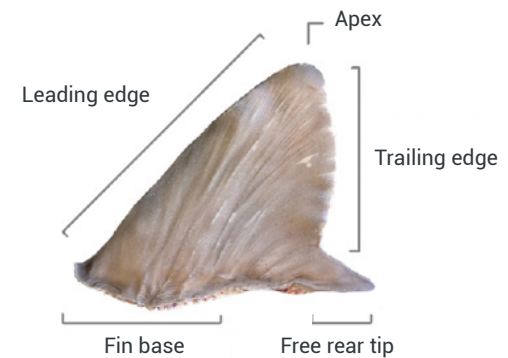
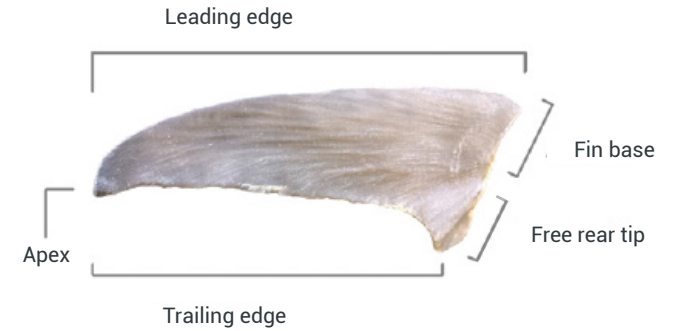


DORSAL FIN



PECTORAL FIN

Other key features used to identify fins using this publication are given below.



BIGEYE THRESHER

Alopias superciliosus



1.

DISTRIBUTION

Global: Worldwide in tropical and temperate seas
Bhutan: Species not found
India: Andaman and Nicobar Islands and Gulf of Mannar
Nepal: Species not found

CONSERVATION STATUS

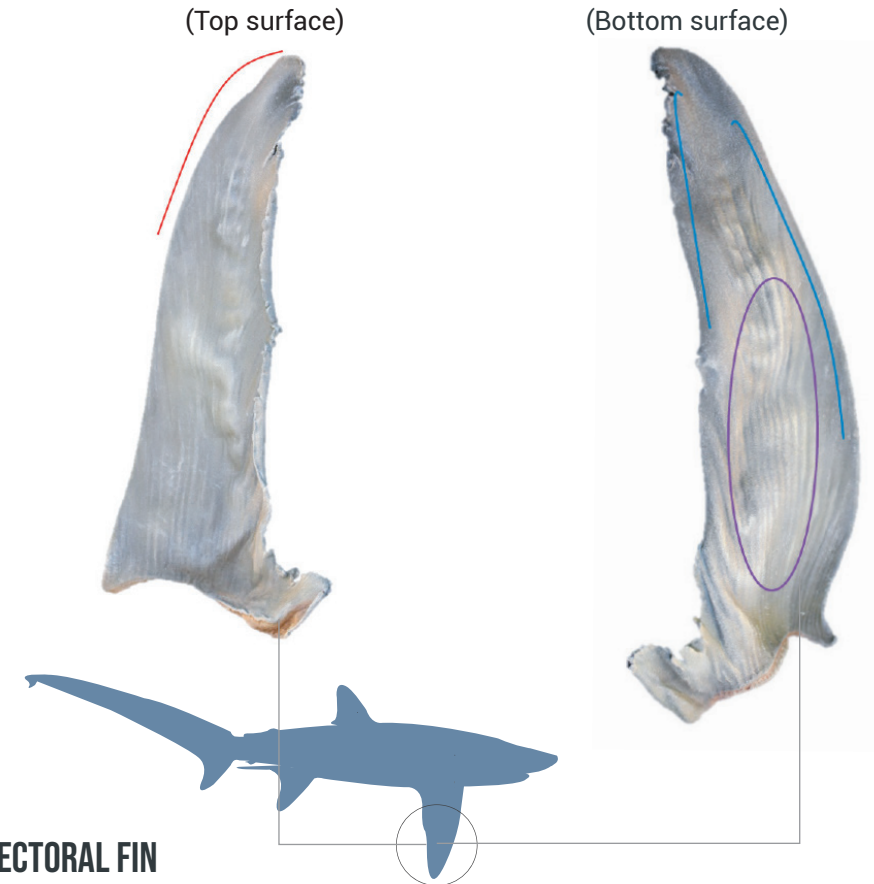
IUCN status: Vulnerable



PROTECTION STATUS

	BHUTAN	INDIA	NEPAL
NATIONAL LAWS AND STATUS	Forest and Nature Conservation Act 1995 - Schedule I and Forest and Nature Conservation Rules and Regulations 2017 [FNCRR]	Wild Life (Protection) Act, 1972	National Parks and Wildlife Conservation Act, 1973
CITES	Not Found	Schedule IV	Not Found
		Appendix II	

1. PECTORAL FIN



PECTORAL FIN

- Long and slender fin
- Apex is slightly curved
- Top surface is grey to greyish brown
- Margins of the leading and trailing edges are darker
- The bottom surface is almost the same colour as the top surface with a visible light colouration at the base extending into the middle of the fin

COMMON THRESHER

Alopias vulpinus



DISTRIBUTION

Global: Worldwide in tropical to cold temperate seas

Bhutan: Species not found

India: South-west and East coast

Nepal: Species not found

CONSERVATION STATUS

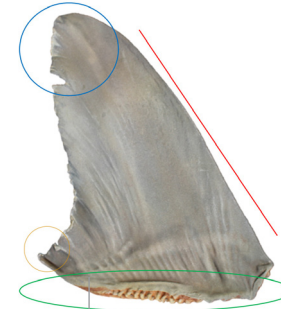
IUCN status: Vulnerable



PROTECTION STATUS

	BHUTAN	INDIA	NEPAL
NATIONAL LAWS AND STATUS	Forest and Nature Conservation Act 1995 - Schedule I and Forest and Nature Conservation Rules and Regulations 2017 [FNCRR]	Wild Life (Protection) Act, 1972	National Parks and Wildlife Conservation Act, 1973
	Not Found	Schedule IV	Not Found
CITES	Appendix II		

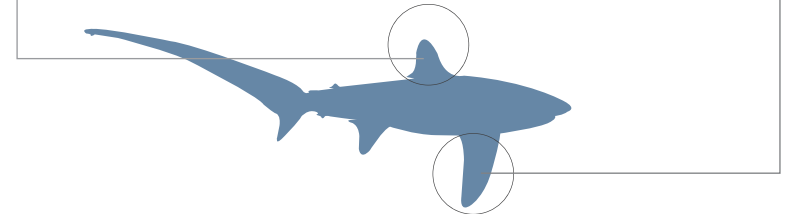
1. DORSAL FIN



2. PECTORAL FIN

(Top surface)

(Bottom surface)



DORSAL FIN

- Thick cartilage at the base
- Tall leading edge
- Slightly curved trailing edge
- Rounded apex tip
- A short free rear tip at the base
- Dark grey on the margins of the leading and trailing edges

PECTORAL FIN

- Long and slender from leading edge to trailing edge
- Apex tip is rounded with a tiny white spot which is visible on both top and bottom surfaces
- Dark grey to dark greyish brown on the top surface. The bottom surface has a similar colour to the top surface with a slightly white colouration at the base

PORBEAGLE SHARK

Lamna nasus



DISTRIBUTION

Global: North Atlantic and Southern Hemisphere
Bhutan: Species not found
India: Not distributed or recorded from Indian waters
Nepal: Species not found

CONSERVATION STATUS

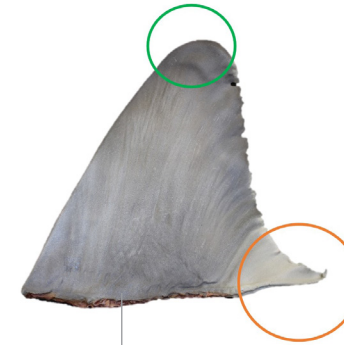
IUCN status: Vulnerable



PROTECTION STATUS

	BHUTAN	INDIA	NEPAL
NATIONAL LAWS AND STATUS	Forest and Nature Conservation Act 1995 - Schedule I and Forest and Nature Conservation Rules and Regulations 2017 [FNCRR]	Wild Life (Protection) Act, 1972	National Parks and Wildlife Conservation Act, 1973
	Not Found	Schedule IV	Not Found
CITES	Appendix II		

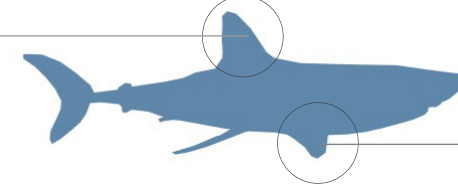
1. DORSAL FIN



2. PECTORAL FIN

(Top surface)

(Bottom surface)



DORSAL FIN

- Thin base
- Apex is rounded
- Dark blue or black to dark greyish brown with a white patch on the free rear tip

PECTORAL FIN

- Apex is rounded
- Short and broad
- Dark grey or greyish brown with a white margin along the edge of the free rear tip
- Bottom surface is white or with dark colouration throughout the mid-section of the fin and along the margins

SHORTFIN MAKO SHARK

Isurus oxyrinchus



DISTRIBUTION

Global: Worldwide in tropical and temperate waters

Bhutan: Species not found

India: West and East coast

Nepal: Species not found

CONSERVATION STATUS

IUCN status: Endangered

EN

PROTECTION STATUS

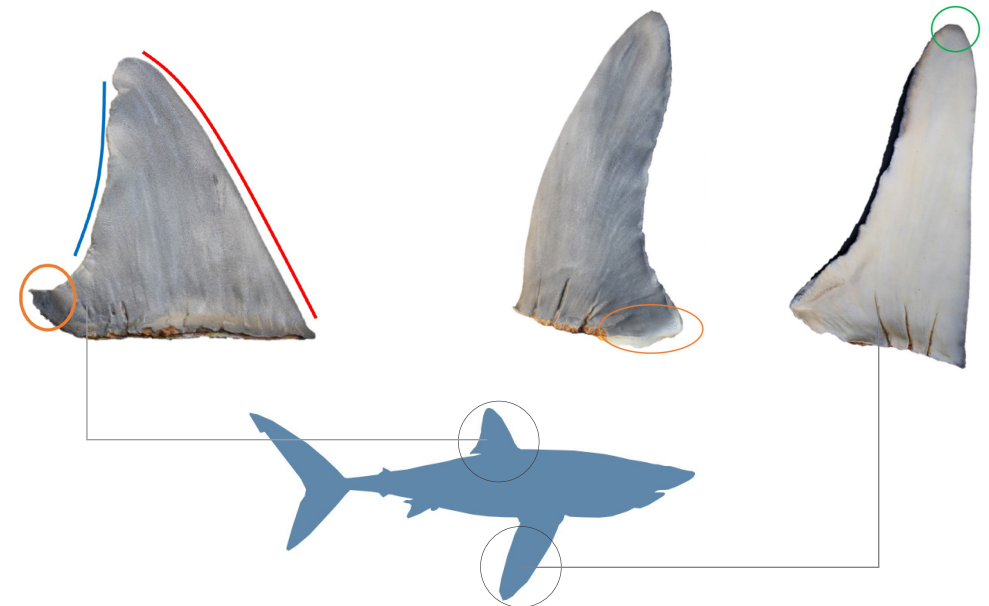
	BHUTAN	INDIA	NEPAL
NATIONAL LAWS AND STATUS	Forest and Nature Conservation Act 1995 - Schedule I and Forest and Nature Conservation Rules and Regulations 2017 [FNCRR]	Wild Life (Protection) Act, 1972	National Parks and Wildlife Conservation Act, 1973
	Not Found	Schedule IV	Not Found
CITES	Appendix II		

1. DORSAL FIN

2. PECTORAL FIN

(Top surface)

(Bottom surface)



DORSAL FIN

- Short free rear tip
- Moderately rounded apex
- Nearly straight trailing edge
- Uniform slate grey colouration
- Tall, very erect fin due to steep angle of the leading edge

PECTORAL FIN

- Top surface is slate grey in colour with white margin running along the edge of the free rear tip
- Moderately rounded apex
- Bottom surface is uniform white with no obvious dark or dusky markings

BLUE SHARK

Prionace glauca



DISTRIBUTION

Global: Worldwide in tropical and temperate waters
Bhutan: Species not found
India: South-western Indian coast
Nepal: Species not found



CONSERVATION STATUS

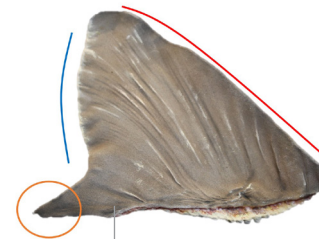
IUCN status: Near Threatened



PROTECTION STATUS

	BHUTAN	INDIA	NEPAL
NATIONAL LAWS AND STATUS	Forest and Nature Conservation Act 1995 - Schedule I and Forest and Nature Conservation Rules and Regulations 2017 [FNCRR]	Wild Life (Protection) Act, 1972	National Parks and Wildlife Conservation Act, 1973
CITES	Not Found	Schedule IV	Not Found
		Appendix II	

1. DORSAL FIN



DORSAL FIN

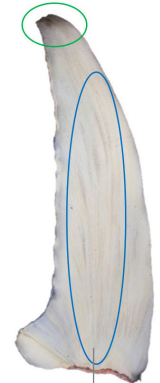
- Low angular leading edge
- Outwardly curving trailing edge
- A short free rear tip at the base
- Dark grey to brownish

It looks similar to the dorsal fin of a Silky Shark *Carcharhinus falciformis*, a CITES-listed species. However, the dorsal fin of Silky Shark has a longer free rear tip and a steeper slope on the leading edge. It also has a smoother texture and a more uniform grey colour.

2. PECTORAL FIN

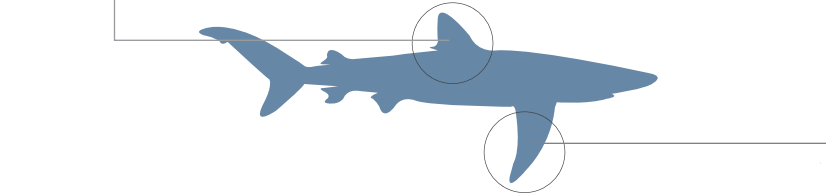
(Top surface)

(Bottom surface)



PECTORAL FIN

- Long and narrow fins with a steep leading and trailing edge
- Radial cartilage extending from the base towards the apex
- The top surface is dark grey or greyish brown
- The bottom surface is white without any markings and has a dark apex



OCEANIC WHITETIP SHARK

Carcharhinus longimanus



DISTRIBUTION

Global: Worldwide in tropical and temperate waters

India: West and East coast

Bhutan: Species not found

Nepal: Species not found

CONSERVATION STATUS

IUCN status: Critically Endangered



PROTECTION STATUS

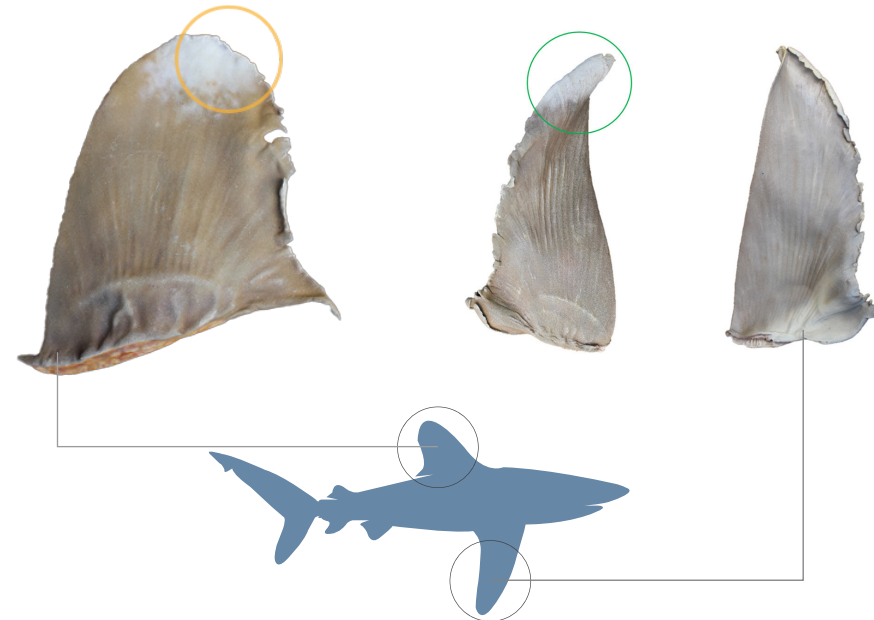
	BHUTAN	INDIA	NEPAL
NATIONAL LAWS AND STATUS	Forest and Nature Conservation Act 1995 - Schedule I and Forest and Nature Conservation Rules and Regulations 2017 [FNCRR]	Wild Life (Protection) Act, 1972	National Parks and Wildlife Conservation Act, 1973
	Not Found	Schedule II	Not Found
CITES	Appendix II		

1. DORSAL FIN

2. PECTORAL FIN

(Top surface)

(Bottom surface)



DORSAL FIN

- Apex tip is large and broadly rounded
- Rear tip at the base is curved
- Non-uniformly white at the apex tip

PECTORAL FIN

- Apex is long and broadly rounded, and curved
- Non-uniformly white at the apex tip on the top surface. The bottom surface is usually white but can be non-uniformly brown

SILKY SHARK

Carcharhinus falciformis



1.



2.

DISTRIBUTION

Global: Worldwide in tropical waters

Bhutan: Species not found

India: East and West coast

Nepal: Species not found

CONSERVATION STATUS

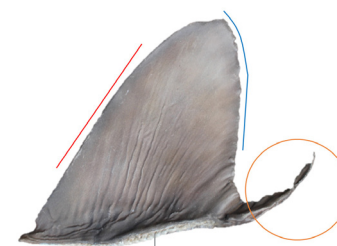
IUCN status: Vulnerable



PROTECTION STATUS

	BHUTAN	INDIA	NEPAL
NATIONAL LAWS AND STATUS	Forest and Nature Conservation Act 1995 - Schedule I and Forest and Nature Conservation Rules and Regulations 2017 [FNCRR]	Wild Life (Protection) Act, 1972	National Parks and Wildlife Conservation Act, 1973
	Not Found	Schedule IV	Not Found
CITES	Appendix II		

1. DORSAL FIN

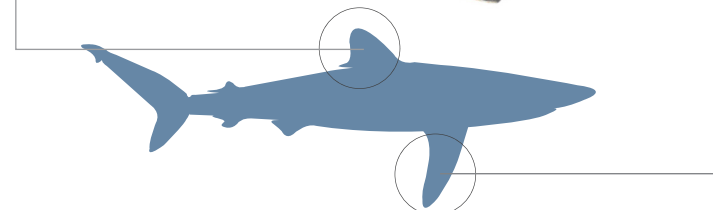
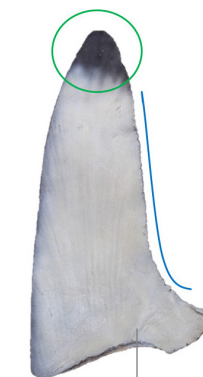


2. PECTORAL FIN

(Top surface)



(Bottom surface)



DORSAL FIN

- Apex tip is moderately rounded
- Free rear tip is close to half the length of the base
- Leading edge is sloping
- Trailing edge is curved outwardly
- Uniform grey or greyish brown

PECTORAL FIN

- Apex tip is narrow and rounded
- Trailing edge is long and nearly straight
- Grey or greyish brown on the top surface
- Bottom surface is white with a dark grey at the apex tip

GREAT HAMMERHEAD SHARK

Sphyrna mokarran



DISTRIBUTION

Global: Worldwide throughout tropical and warm temperate seas
Bhutan: Species not found
India: East and west coast
Nepal: Species not found

CONSERVATION STATUS

IUCN status: Critically Endangered



PROTECTION STATUS

	BHUTAN	INDIA	NEPAL
NATIONAL LAWS AND STATUS	Forest and Nature Conservation Act 1995 - Schedule I and Forest and Nature Conservation Rules and Regulations 2017 [FNCRR]	Wild Life (Protection) Act, 1972	National Parks and Wildlife Conservation Act, 1973
	Not Found	Schedule II	Not Found
CITES	Appendix II		

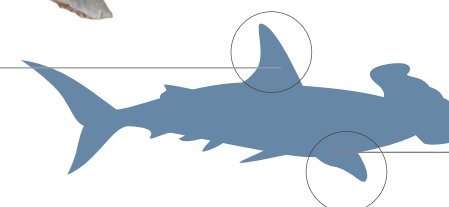
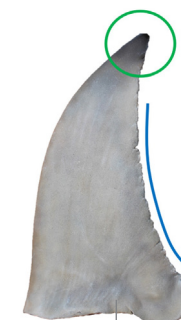
1. DORSAL FIN



2. PECTORAL FIN

(Top surface)

(Bottom surface)



DORSAL FIN

- Apex tip is pointed and curved
- A free rear tip at the base
- Tall and slender
- Light grey

PECTORAL FIN

- Broad along the base
- Apex is pointed
- Trailing edge is moderately curved
- Bottom surface is dark grey at the apex and along the trailing edge

SCALLOPED HAMMERHEAD SHARK

Sphyrna lewini



1.



2.

DISTRIBUTION

Global: Worldwide in coastal warm-temperate and tropical seas

India: West and East coast

Bhutan: Species not found

Nepal: Species not found

CONSERVATION STATUS

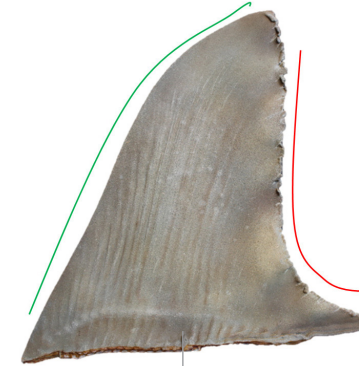
IUCN status: Critically Endangered

CR

PROTECTION STATUS

	BHUTAN	INDIA	NEPAL
NATIONAL LAWS AND STATUS	Forest and Nature Conservation Act 1995 - Schedule I and Forest and Nature Conservation Rules and Regulations 2017 [FNCRR]	Wild Life (Protection) Act, 1972	National Parks and Wildlife Conservation Act, 1973
	Not Found	Schedule IV	Not Found
CITES	Appendix II		

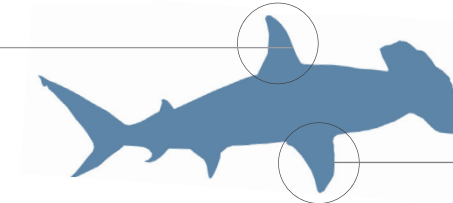
1. DORSAL FIN



2. PECTORAL FIN

(Top surface)

(Bottom surface)



DORSAL FIN

- Base is thin
- Leading edge is tall and flat at the apex tip
- Trailing edge is straight and curved at the base
- Light brown

PECTORAL FIN

- Short and broad
- Light brown or light greyish brown on the top surface
- Bottom surface is light greyish brown with distinct black markings at the apex tip

BOWMOUTH GUITARFISH

Rhina ancylostoma



DISTRIBUTION

Global: Indo - West Pacific ocean
Bhutan: Species not found
India: West and East coast
Nepal: Species not found

CONSERVATION STATUS

IUCN status: Critically Endangered



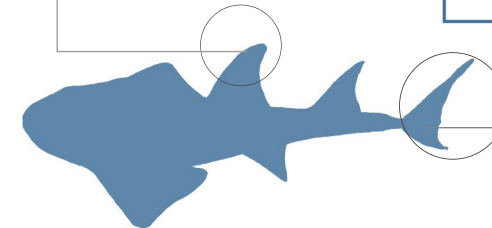
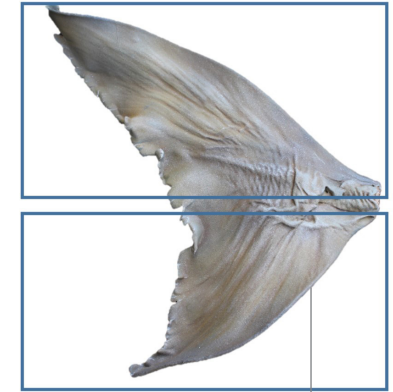
PROTECTION STATUS

	BHUTAN	INDIA	NEPAL
NATIONAL LAWS AND STATUS	Forest and Nature Conservation Act 1995 - Schedule I and Forest and Nature Conservation Rules and Regulations 2017 [FNCRR]	Wild Life (Protection) Act, 1972	National Parks and Wildlife Conservation Act, 1973
CITES	Not Found	Schedule I	Not Found
		Appendix II	

1. DORSAL FIN



2. CAUDAL FIN



DORSAL FIN

- Tall and narrow
- Multiple irregularly shaped rows of cartilage or two long strips of cartilage present along the base
- Short free tip at the base
- Brownish-grey and usually with white spots

CAUDAL FIN

- Crescent moon shaped with symmetrical to the upper and lower sides
- Some faded white spots may be present

GIANT GUITARFISH

Rhynchobatus djiddensis



DISTRIBUTION

Global: Western Indian Ocean from South Africa to Oman and the Arabian/Persian Gulf, but it may not be present further east

Bhutan: Species not found

India: West and East coast

Nepal: Species not found

CONSERVATION STATUS

IUCN status: Critically Endangered

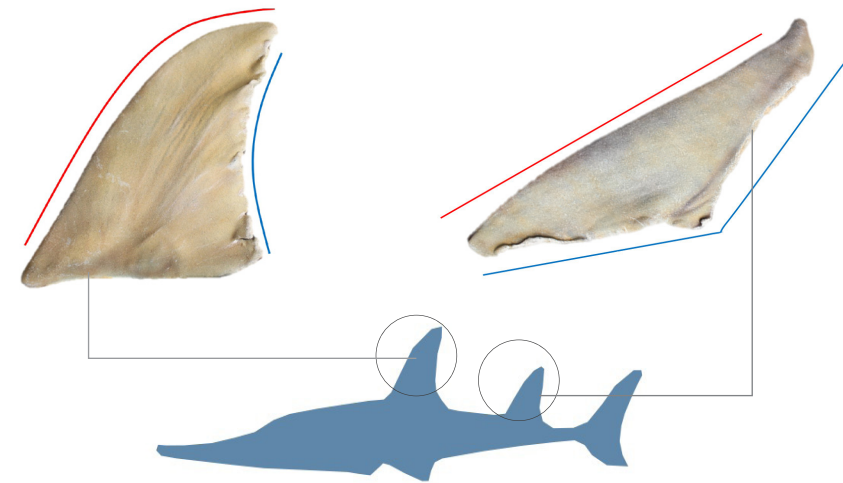


PROTECTION STATUS

	BHUTAN	INDIA	NEPAL
NATIONAL LAWS AND STATUS	Forest and Nature Conservation Act 1995 - Schedule I and Forest and Nature Conservation Rules and Regulations 2017 [FNCRR]	Wild Life (Protection) Act, 1972	National Parks and Wildlife Conservation Act, 1973
	Not Found	Schedule I	Not Found
CITES	Appendix II		

1. DORSAL FIN

2. SECOND DORSAL FIN



DORSAL FIN

- Multiple irregularly shaped rows of cartilage or two long strips of cartilage present along the base
- Apex is pointed
- Leading edge is slightly curved towards the apex tip
- Trailing edge is curved inwards until the base
- Dull brown to light grey

SECOND DORSAL FIN

- The base and the trailing edge are nearly the same lengths
- The leading edge is long
- Dull brown to light grey

WEDGEFISH

Rhynchobatus spp.



1.

DISTRIBUTION

Global: Worldwide temperate to tropical waters

Bhutan: Species not found

India: East and West coast

Nepal: Species not found

CONSERVATION STATUS

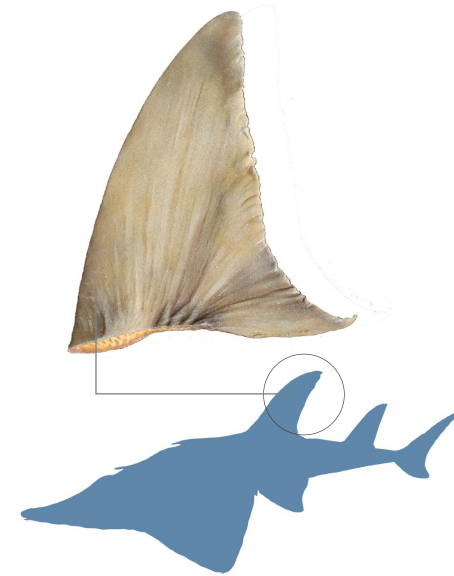
IUCN status: Critically Endangered



PROTECTION STATUS

	BHUTAN	INDIA	NEPAL
NATIONAL LAWS AND STATUS	Forest and Nature Conservation Act 1995 - Schedule I and Forest and Nature Conservation Rules and Regulations 2017 [FNCRR]	Wild Life (Protection) Act, 1972	National Parks and Wildlife Conservation Act, 1973
	Not Found	Schedule I: <i>Bottlenose Wedgefish</i> <i>Rhynchobatus australiae</i> <i>Smoothnose Wedgefish</i> <i>R. laevis</i>	Not Found
CITES	Appendix II		

1. DORSAL FIN



DORSAL FIN

- Fin base with cartilaginous blocks that don't extend till the entire fin base
- Tall and narrow with a height greater than the width
- Free rare tip on the base
- Light yellowish or brownish

REFERENCES

- Abercrombie, D. L., and Jabado, R. W. (2022). *CITES Sharks and Rays - Implementing and Enforcing Listings: Volume III - Dried Product ID*. Wildlife Conservation Society.
- Ebert, D. A., Dando, M., and Fowler, S. (2021). *Sharks of the world: a complete guide (Vol. 22)*. Princeton University Press.
- IUCN. (2022). The IUCN Red List of Threatened Species. Version 2022-2.
- Last, P., Naylor, G., Séret, B., White, W., de Carvalho, M., and Stehmann, M. (Eds.). (2016). *Rays of the World*. CSIRO publishing.
- TRAFFIC. Shark fin identification for CITES-listed species.
- Kizhakudan, S.J., Zacharia, P.U., Thomas, S., Vivekanandan, E., and Muktha M. (2015). *Guidance on National Plan of Action for Sharks in India*. CMFRI Marine Fisheries Policy Series No. 2, 104p.
- Kizhakudan, S. J., Akhilesh, K. V., Thomas, S., Yousuf, K. S. S. M., Sobhana, K S., Purushottama, G. B., Muktha, M., Dash, S. S., Manojkumar, P. P., Nair, R. J., Najmudeen, T M., and Zacharia, P U. (2018). *Field identification of batoids – a guide to Indian species*. CMFRI Special Publication (132). ICAR - Central Marine Fisheries Research Institute, Kochi.



TRAFFIC is a leading non-governmental organisation working globally on trade in wild animals and plants in the context of both biodiversity conservation and sustainable development.

For further information contact:

TRAFFIC, India Office
C/O WWF-India Secretariat,

172-B, Lodi Estate
New Delhi- 110003

Tel: +91-11-41504786,

Email: trafficind@wwfindia.net

For more information, please visit

www.trafficindia.org

www.traffic.org



TRAFFIC

TRAFFIC
+91-11-41504786
traffic@traffic.org
traffic.org